Learning from Cuban avidity

Dato' Dzulkifli Abd Razak

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MALAYSIA, like Cuba, views science and technology (S&T) as important in advancing its socio-economic status. S&T are high priorities in Malaysia's quest to be a developed country as envisaged under the framework of Vision 2020.

In fact, one of the challenges of Vision 2020 is to build a society that is scientifically progressive, a society that is innovative and forward-looking; one that is not only a consumer of technology but also a contributor to the scientific and technological community.

Much has been achieved in promoting S&T, particularly in transforming Malaysia into an industrial nation. The development of electronic, automotive and more recently, IT industries are some of the S&T-based ventures that Malaysia can be proud of.

Of late, Malaysia has embarked on a biotechnological venture following the launch of the *BioValley* initiative. This new endeavour is quite different from other successful experiences that we have had. The sharing of experiences is important here; and lessons from Cuba are worth studying in depth.

According to a pedagogical expert, Lino Borroto Lopez, in his article *Education and Development — Cuba, Challenges for the Second Millennium* (1999)," Cuba can speak today of scientific development because it has highly qualified researchers. We can speak of advance in biotechnological research, in the discovery of vaccines, and in the pharmaceutical industry."

This is indeed the case given the fact that the "scientific literacy" campaign carried out in the early years of the revolution forms the base of the scientific capabilities in Cuba today.

Fidel Castro realised that unless "scientific literacy" was raised, Cuba would have to pay a high price for development. In a speech in 1990, he was reported as saying: "What is exploited is our ignorance. They (the industrialised countries) exploit the lack of scientific and technical knowledge. The techno-scientific development of the industrialised countries that exploit us is one of the instruments of pillage."

Independence, according to him, is not a question of symbolism (in the form of a flag, an anthem or coat-of-arms). Rather, it is dependent on development, and advances in science and technology.

And thus, support from techno-scientific intellectuals has been Cuba's cornerstone since the beginning, observed Jorge Nunez Jover, a sociologist and professor at the University of Havana.

Thus, by late 1980s, there were already some 30,000 workers dedicated full-time to scientific research in 153 centres, and 20,000 professors and 300,000 university students whose researches are given due importance.

Data from a UNESCO report (1987) showed in 1985, the number of human resources dedicated to research and development in Cuba was close to 20,000, slightly more than half were scientists and engineers, the rest technicians.

It is not surprising therefore that during the 80s, Cuba was ready to start biotechnological research, focusing on the biosciences and pharmaceuticals in particular.

Cuba set up institutions known as "scientific poles" (similar to research parks) where such efforts could be channelled.

Towards this end *BioValley,* as the prime mover of biotechnology in Malaysia, shares similarities with the Cuban model.

For instance, Joyer wrote:"By the end of the 80s, the institutionalisation of the techno-scientific activity had matured considerably and was supported by a network of higher education centres distributed through the length and breath the country."

Among them are research centres of international standards as discussed in the first article *(Learning Curve,* Oct 12).

In addition, there is also "a system of techno-scientific services (information, trademarks, patents), and of engineering firms directed towards putting research results into practice and evaluating and transferring technology."

Currently, Cuba has 15 scientific poles within which more than 23,000 people, of whom 43 per cent are university graduates, working on more than 1,000 research projects creating new products and processes.

One of the most productive is the Western Scientific Pole in Havana founded and headed by no less than the Secretary of the State Council Dr Jose Miyar Barrueco. Thirty-eight human, animal and plants health centres are grouped under it – a collaborative attempt to establish a critical mass of Cuban scientific expertise.

Besides the scientific poles, there is also a Biological Front, a scientific think tank established in 1981, meant to bridge the gap between the world of science and the Cuban national economy. The Front brings together prestigious scientists from various Centres and institutions of bioscience "to discuss innovative proposals" and implement them.

Interestingly, the Front, which is linked to the high-powered Council of State, is well characterised by its "flexible, operative, collective, non-schematic and non-bureaucratic work style" —something that the Malaysian S&T fraternity is not used to.

Clearly, Cuban success in S&T is founded on its well-planned and well-executed programme in churning out highly qualified and well-trained personnel with specific missions.

Unlike their Malaysian counterparts, Cuban scientists have very limited access to S&T of developed countries, which in any case, are too expensive to afford. They thrive on their own ingenuity, developing their own versions of existing technologies.

Thus, while their facilities may be relatively modest, they excel with inventiveness and high productivity. This is, again, something Malaysia researchers can learn from Cuban scientists—creating more from less.

Equally important is the teamwork that binds Cubans institutionally. They are also adept at multi-tasking. For example, there are about 450 institutions involved in the scientific poles, giving rise to many research teams.

They adopt an attitude termed as "consecration" which was introduced during the early days of the interferon project *(Learning Curve,* Oct. 26), where "painstaking and total dedication to work" is benchmarked as the norm.

Consecration has now spread throughout Cuba, as testified by a famous Cuban biochemist professor, Ernesto Mario Bravo: "Ifs difficult for scientists to be idle. When they aren't doing experiments, they’re the library or writing. There is never enough time." Malaysians would do well to emulate the Cubans in their dedication and focus.

It is rather timely for Malaysia to progress in S&T since the government has just committed itself to increasing the scientific workforce in the country by fourfold by 2010.

By the end of the decade, there would be 60 researchers, engineers and scientists per 10,000 people in the labour force compared to the current 15 per 10,000. In six years, Malaysia wants to have 138,000 scientific personnel.

The Government has allocated RM300 million to train postgraduates in S&T. It *is* hoped that they will be ingrained with the attitudes of teamwork, accountability and "consecration", just like their successful Cuban counterparts.